

same author, published about a year later,\* and "Plant Physiology and Ecology," 1907.)

Although our friends the foresters cannot claim the science of plant sociology as exclusively their own, they certainly deserve much credit for the part they have played in developing it. Their practice of measuring timber and estimating the annual growth ought to be extended to other kinds of vegetation. One finds scarcely a hint of volumetric studies of vegetation in non-economic botanical literature, but a few years from now perhaps no description of natural vegetation will be regarded as complete unless it contains an estimate of the volume or weight of vegetation per acre (or other unit area) and the absolute or relative amount of new growth each year.† The annual increment, or birth and death rate, of vegetation, although by no means easy to determine in a mixed forest, ought to bear a fairly definite relation to the sum of all environmental factors, just as crop yields do, and it would be extremely interesting to know whether or not it increases with the progress of succession, for instance.

COLLEGE POINT, N. Y.

## THE ADMIRABLE *POLYPORUS* IN THE FLORA OF THE LAKE GEORGE REGION

BY STEWART H. BURNHAM

The first specimen of *Polyporus admirabilis* Pk., recorded in the Flora, was found by Mrs. R. B. Van Alstyne, of Troy, at Lake George, in 1900, on an apple tree.‡ Dr. Chas. H. Peck afterwards found it in the flora, July 25, 1906, at Friends Lake, Warren county, on an apple tree, which is recorded in his unpublished notes. I have never found it in the Lake George Region growing on apple trees.

The specimens of *Polyporus admirabilis*, which I have found

\* For references to reviews of these two books see Ann. N. Y. Acad. Sci. 17: 349. Nov. 1906. Other good reviews, published too late to be cited there, are those by Blackman and Tansley in the New Phytologist, Nov. and Dec. 1905, and by Fernow in the Forestry Quarterly, March, 1906.

† For some data of this kind for herbaceous vegetation in the Great Plains region see Shantz, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 201: 81. 1911.

‡ N. Y. State Mus. Rept. 54: 154. 1901.

growing on an apple tree log, referred to by Dr. B. O. Dodge in his paper "Fungi producing Heart-rot of Apple Trees,"\* were collected at Pike pond, Rensselaer county, July 23, 1910. This pond lies a few miles south of Averill Park and Sandlake villages. Part of this collection is preserved in the State Herbarium at Albany, where at least a portion of it bears the name *Polyporus Underwoodii* Murrill, which is of course an error in determination! The other portion of the Pike pond collection is in the Herbarium of the Lloyd Museum at Cincinnati, Ohio. Referring to a letter from Dr. C. G. Lloyd, December 1, 1910, acknowledging the receipt of the specimens sent with the name *Polyporus Underwoodii* attached, he says:

"I think *Polyporus Underwoodii* is correctly named, though in my opinion it is only a synonym for *admirabilis* Pk. The stipe (always short) is almost wanting, in which case it becomes *admirabilis*. This is another instance of the variation of the black markings of the stem, for in almost sessile specimens this character is absent or obscure. I think the plant is very closely allied to *varius* of Europe, in fact a specimen recently sent to Bresadola was referred by him as a variety of *varius* Fr. It has the same indurated context and same spores and is certainly closely allied to *varius*. In this connection, I wish you would please examine the type specimens of *admirabilis* and write me if you find the spores are "globose." I think that must be an error, for the plants of all these allied species, viz., *varius*, *picipes*, *elegans*, *albiceps*, *melanopus*, etc., have very similar spores, about  $4 \times 8-10 \mu$ , and are cylindrical."

I do not recall ever examining the spores of the type specimens of *Polyporus admirabilis* from Maine. Dr. Lloyd records receipt of my specimens in his printed letter, No. 30: 3. Jan. 1911.

In the vicinity of Vaughns (Hudson Falls), New York, specimens of this showy pure white "calla lily"-like polypore has been recorded on various trees during the past eleven years, viz.,

Butternut (*Juglans cinerea* L.). On a partly fallen trunk, leaning over Glenwood brook. The following dates: Sept. 5, 1904; Oct. 26, 1905; Aug. 18, 1910; Aug. 25, 1911 (part of the

\* Mycologia 8: 8-9. Jan. 1916.

specimens in the State Herbarium); and Sept. 24, 1913. I am sure it appeared in 1914; but have no record. In 1915 fine (!) specimens were developing on this trunk: but the cattle in the pasture somehow got to them and practically destroyed the lot. This butternut trunk is yearly becoming more and more decayed.

White Ash (*Fraxinus americana* L.). On a stump, in an open grove, about one mile southeast of the butternut, July 6, 1907. This was a poor deformed specimen, as I remember: and is deposited in the State Herbarium. I have not found it since at this station.

Black Ash (*Fraxinus nigra* Marsh.). On a stump, lower falls of North Beaver creek, Sept. 2, 1912. On a log, some time fallen but quite sound, July 24, 1915. During June, 1915, the fine (!) specimens were discovered developing on this log: but in spite of the fact the log lay under prickly ash bushes; the herd of cattle pastured in the field, broke off most of the plants and partly destroyed the punks, before the specimens were collected.

Black Willow (*Salix nigra* Marsh.). Very old weathered plants were found on a much broken willow trunk, Nov. 12, 1913, on the north bank of the Halfway brook, east of the village of Tripoli.

Glaucous Willow (*Salix discolor* Muhl.). A small specimen found on a fallen trunk of this willow, Aug. 14, 1915, in Vaughns schoolhouse woods.

White Elm (*Ulmus americana* L.). On the crossing log, over Halfway brook, by the "electric power lines," east of Tripoli, Oct. 4, 1914. Also found here on an elm log, July 25, 1915. This station is about one mile north of the black ash station, with several hills and valleys between.

Sugar Maple (*Acer Saccharum* Marsh.). On a stump in open woods, several rods to the northeast of the butternut locality, across an open pasture, Aug. 19, 1915. A portion of the collections from black ash and sugar maple have been deposited in the Herbarium of the New York Botanical Garden.

Whether the plants at these different stations sprang originally from one source is difficult to say. It is quite possible that the

sugar maple stump was infected from the butternut. The black ash log lies about one fourth of a mile north of the butternut, over one hill.

In the north part of the village of Ballston Spa, on the trunk of some cultivated willow, July 20, 1912, was seen from the railroad coach, what appeared to be punks of *Polyporus admirabilis*. Possibly, if this had been examined, it would have been similar to *Polyporus Underwoodii* found by Dr. H. J. Banker, Aug. 27, 1908, at Schaghticoke, Rensselaer county.

HUDSON FALLS, N. Y.

### SHORTER NOTES

A NOTE ON PRESERVATIVES FOR ALGAE. In *The Plant World* for August, 1913, is an article by Gilbert Morgan Smith, of the University of Wisconsin, on "The Preservation of Fresh Water Chlorophyceae." Among the preservatives recommended is Amann's lacto-phenol-copper solution, and there are given also the results of tests conducted by himself and others as to plasmolysis and coloration. He also gives suggestions as to the amounts which had produced better results with certain algae.

Finding it necessary to make my collection as stable as possible I made use of this solution, putting various algae into it, using as suggested liberal amounts of the solution. I also made a few tests using copper nitrate instead of copper chloride in the solution. The material in the solutions showed little change during periods of one month, two months, or ten weeks. At the three-months' examination, some of the algae showed signs of plasmolysis. After nine months I find that the following results have attended the use of these preservatives:

#### *Copper-Nitrate-lacto-phenol*

- 10 per cent, *Vaucheria*, color good, no plasmolysis
- 5 per cent, *Vaucheria*, color good, some plasmolysis
- 10 per cent, *Spirogyra*, completely plasmolyzed and browned
- 5 per cent, *Spirogyra*, completely plasmolyzed and browned
- 10 per cent, *Tetraspora*, kept well in every case
- 5 per cent, *Tetraspora*, kept well in every case